

## Supplementary Materials

Table S1

*First experiment: Means (M) and standard deviations (SD) of performance measures*

| <b>Exposure time (ms)</b> | <b>Response accuracy (%)</b> |           | <b>Response provided (%)</b> |           | <b>Mean response time (ms)</b> |           | <b>Median response time (ms)</b> |           |
|---------------------------|------------------------------|-----------|------------------------------|-----------|--------------------------------|-----------|----------------------------------|-----------|
|                           | <i>M</i>                     | <i>SD</i> | <i>M</i>                     | <i>SD</i> | <i>M</i>                       | <i>SD</i> | <i>M</i>                         | <i>SD</i> |
| 14                        | 52.79                        | 19.70     | 91.50                        | 16.85     | 1305                           | 525       | 1179                             | 538       |
| 21                        | 55.60                        | 19.60     | 92.65                        | 14.68     | 1267                           | 493       | 1151                             | 527       |
| 35                        | 69.35                        | 21.46     | 94.08                        | 13.64     | 1189                           | 575       | 1079                             | 618       |
| 42                        | 74.68                        | 23.52     | 94.49                        | 13.76     | 1133                           | 596       | 1020                             | 615       |
| 56                        | 81.96                        | 20.66     | 94.76                        | 13.91     | 1083                           | 558       | 974                              | 576       |
| 83                        | 84.80                        | 23.89     | 94.29                        | 15.62     | 1062                           | 612       | 979                              | 650       |
| 104                       | 85.87                        | 22.38     | 95.44                        | 13.15     | 1044                           | 591       | 963                              | 621       |
| 153                       | 86.25                        | 22.79     | 95.37                        | 12.35     | 1049                           | 563       | 958                              | 580       |

*Note.* The results for 'response accuracy' and 'mean response time' were based on 146 or 147 participants. The results for 'response provided' were based on 147 participants.

Table S2

*Follow-up experiment: Means (M) and standard deviations (SD) of performance measures (N = 159)*

| <b>Exposure time (ms)</b> | <b>Response accuracy (%)</b> |           | <b>Median response time (ms)</b> |           |
|---------------------------|------------------------------|-----------|----------------------------------|-----------|
|                           | <i>M</i>                     | <i>SD</i> | <i>M</i>                         | <i>SD</i> |
| 14                        | 57.58                        | 19.03     | 785                              | 343       |
| 21                        | 69.18                        | 19.26     | 711                              | 256       |
| 35                        | 86.10                        | 15.13     | 610                              | 203       |
| 42                        | 90.12                        | 11.96     | 605                              | 196       |
| 56                        | 93.13                        | 11.39     | 564                              | 169       |
| 83                        | 96.66                        | 7.61      | 547                              | 162       |
| 104                       | 97.04                        | 7.59      | 548                              | 150       |
| 153                       | 98.55                        | 6.74      | 562                              | 182       |

*Note.* Because of anticipatory responses, response data were unavailable for 7 of 12720 trials.

### Experiment Instructions

This task will be measuring how little time you need in order to accurately discriminate between one short and one long bar. The long bar will be randomly varied between the left and right positions. Whichever side you see the long bar on, press the key which matches that position (left = red sticker, right = blue sticker). You will first be presented with a fixation marker (Figure 1), after which the stimulus with the two bars is presented (Figure 2). Please press the key that corresponds to the position of the longer bar.



Figure 1

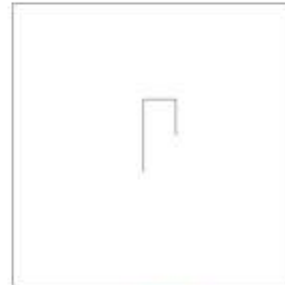
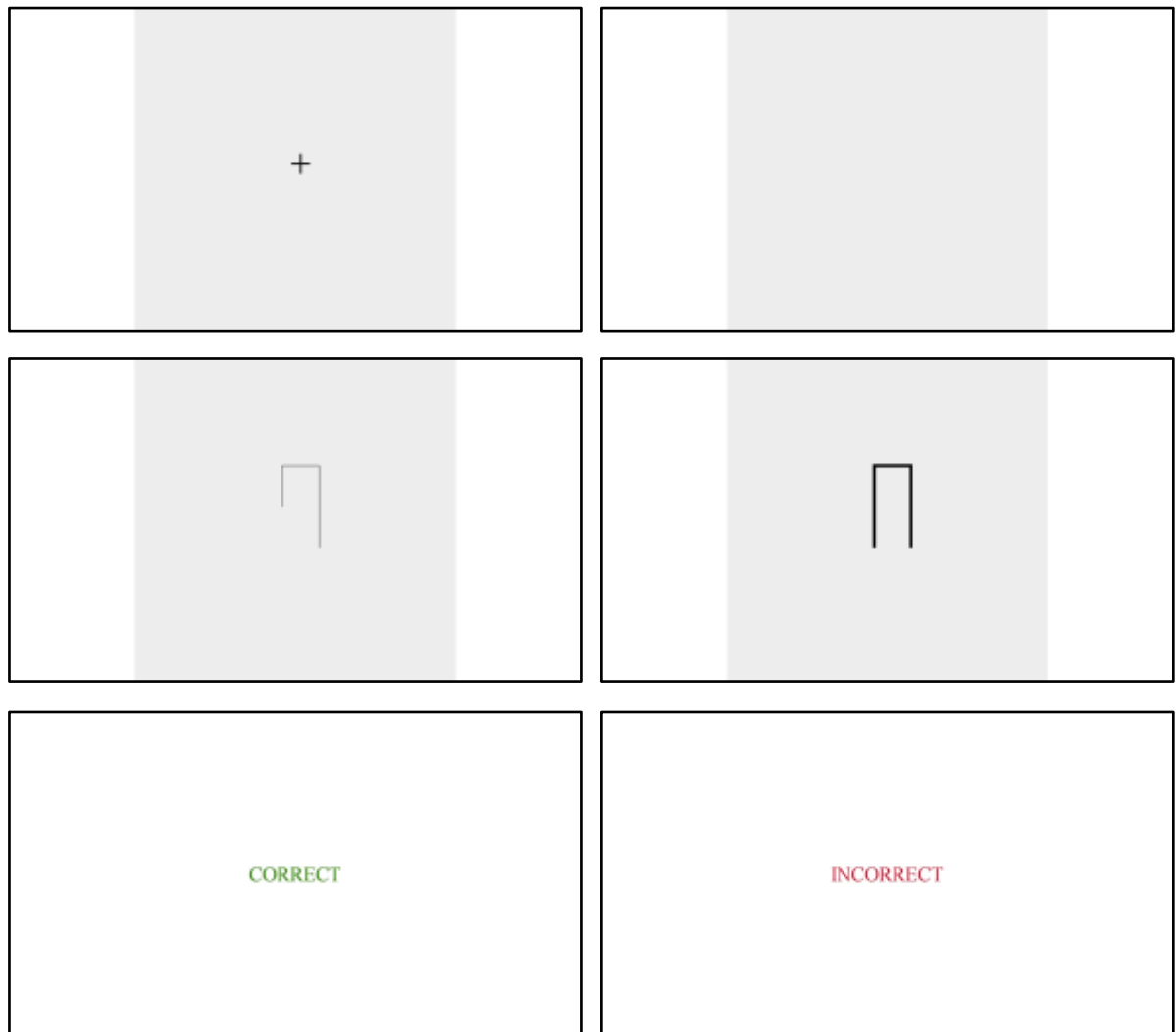


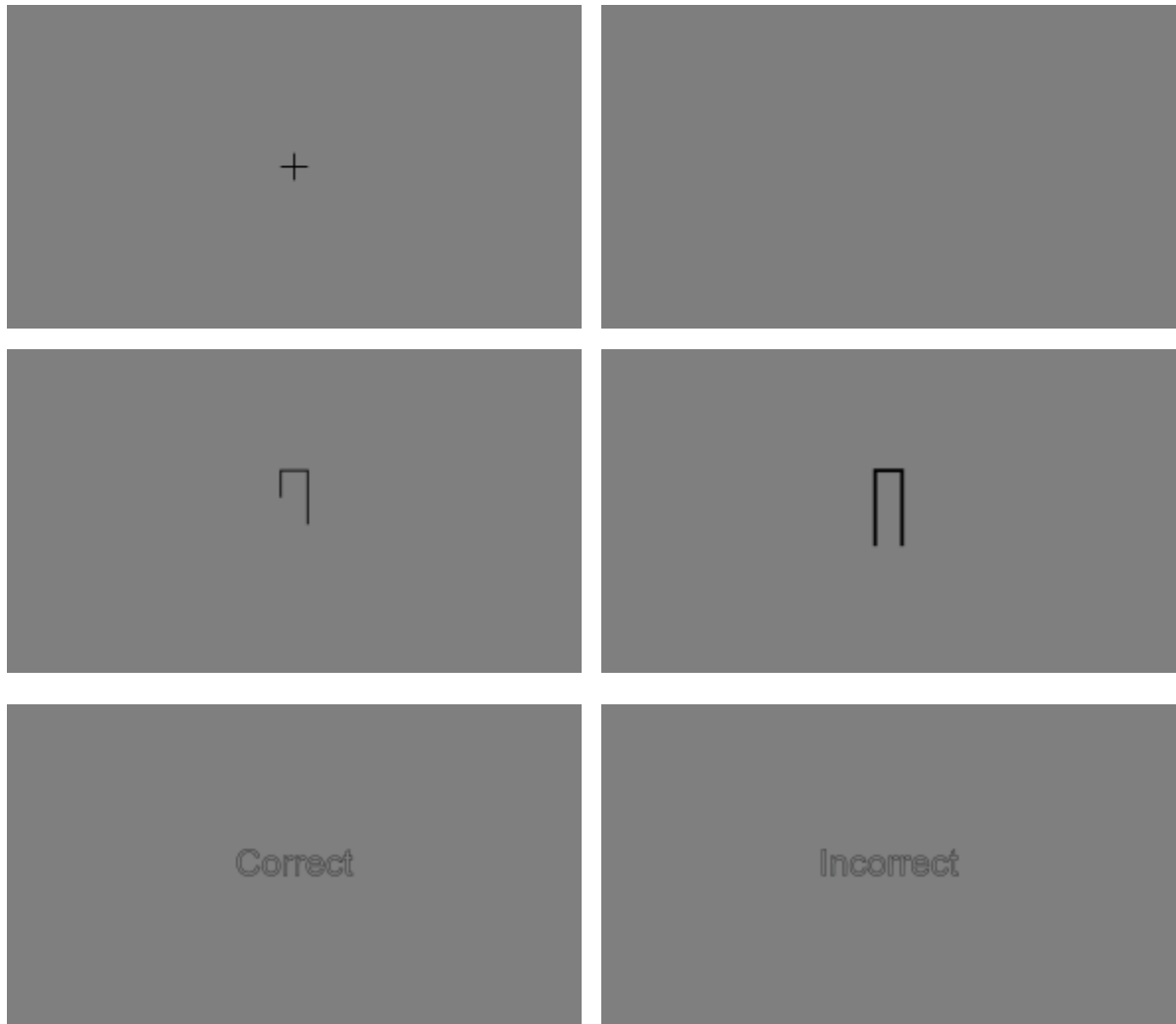
Figure 2

In the above example (Figure 2) the left bar is longer, so the correct response is "left" (key with red sticker).  
If you have finished reading these instructions, press any key to continue.

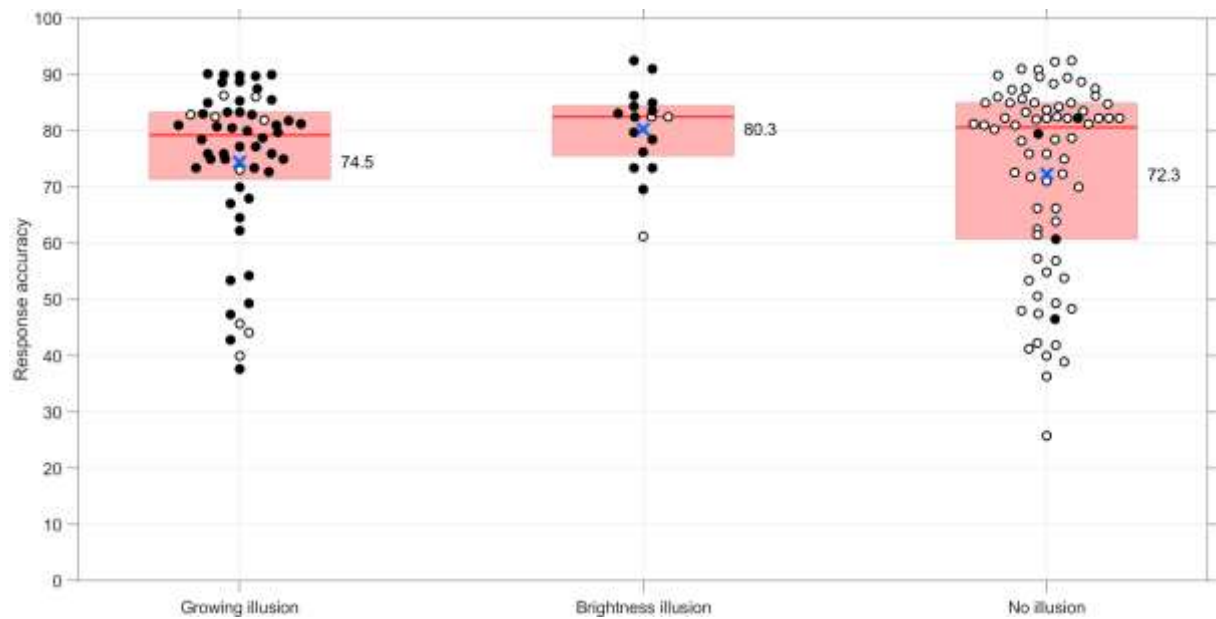
Figure S1. Instructions given prior to the experiment.



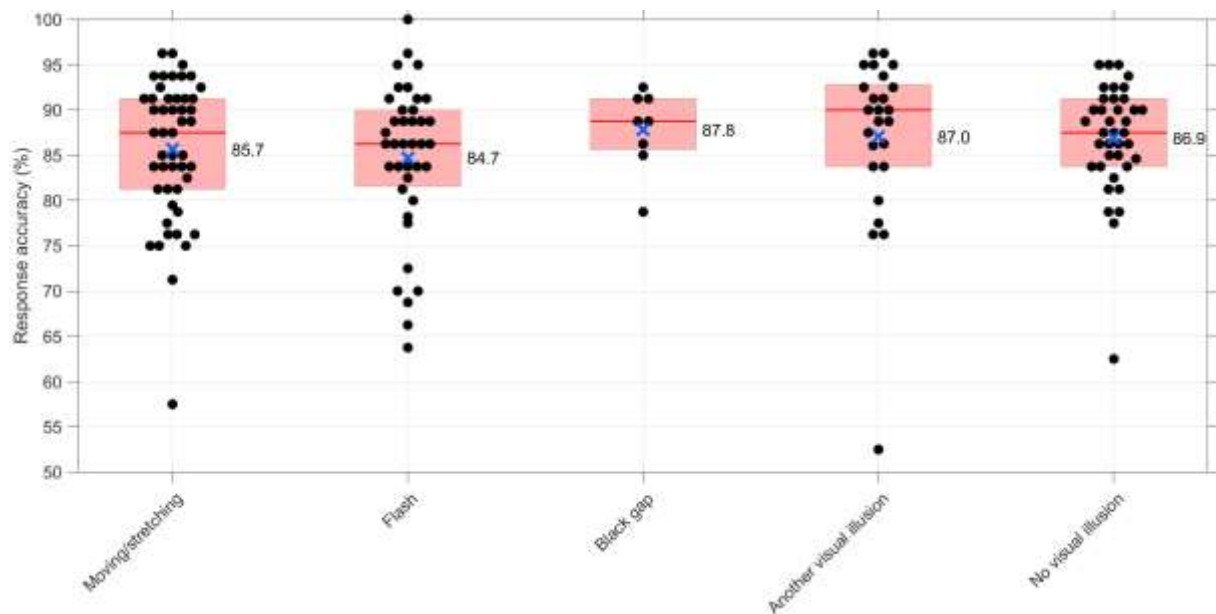
*Figure S2a.* First experiment: Components of an inspection time trial. Left top = Fixation marker, Right top = Blank screen, Left middle = Stimulus with one long and one short leg (i.e., the Pi-figure), Right middle = mask, Bottom left = Feedback after a correct response, Bottom right = Feedback after an incorrect response. The black figure outlines were not shown to the participants.



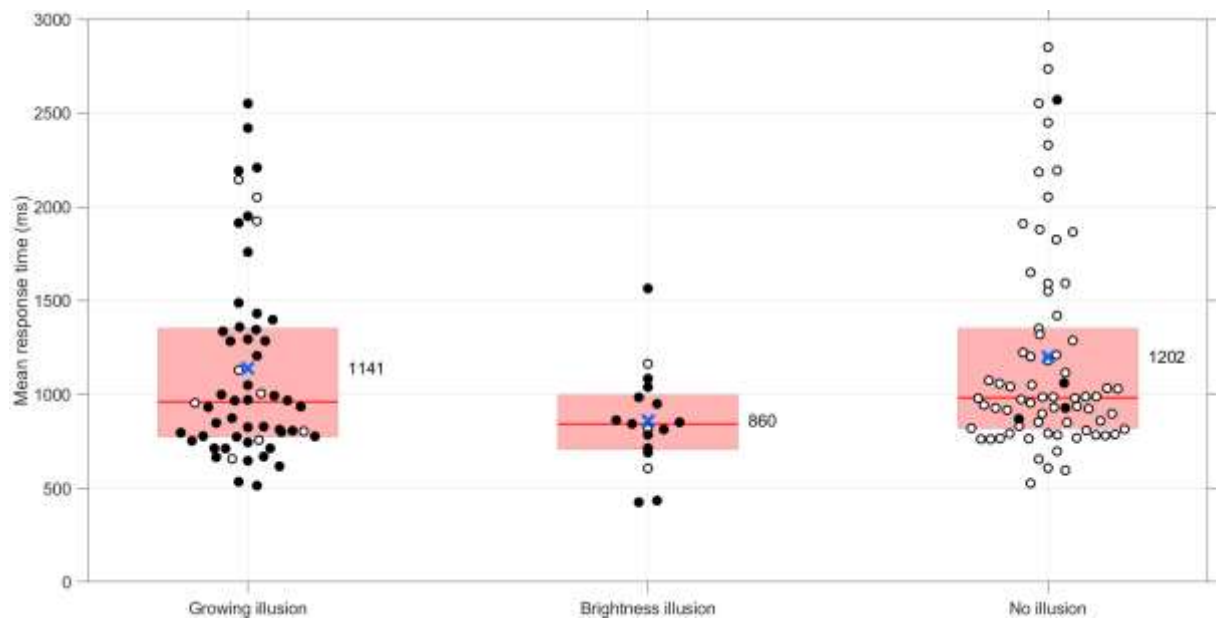
*Figure S2b.* Follow-up experiment: Components of an inspection time trial. Left top = Fixation marker, Right top = Blank screen, Left middle = Stimulus with one long and one short leg (i.e., the Pi-figure), Right middle = mask, Bottom left = Feedback after a correct response, Bottom right = Feedback after an incorrect response.



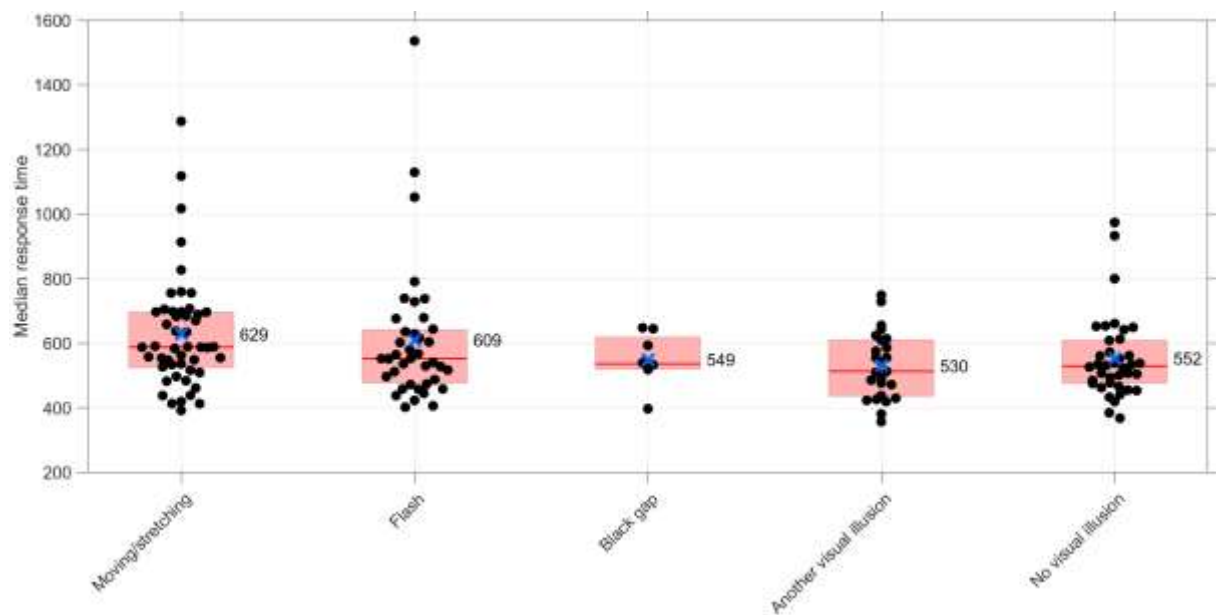
*Figure S3a.* First experiment: Response accuracy per participant as a function of reported illusion type. The boxplot shows the 25th percentile, median, and 75th percentile. The blue markers indicate the means. Black markers represent participants who reported 'yes' to the cue use question; white markers represent participants who reported 'no' to this question.



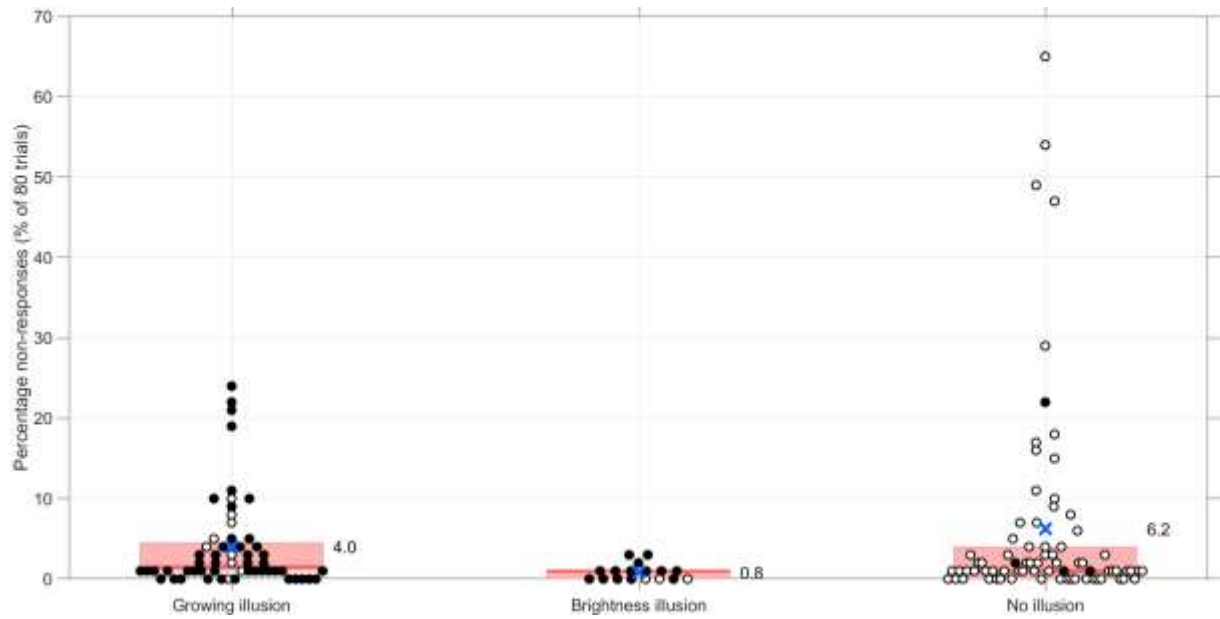
*Figure S3b.* Follow-up experiment: Response accuracy per participant as a function of reported illusion type. The boxplot shows the 25th percentile, median, and 75th percentile. The blue markers indicate the means.



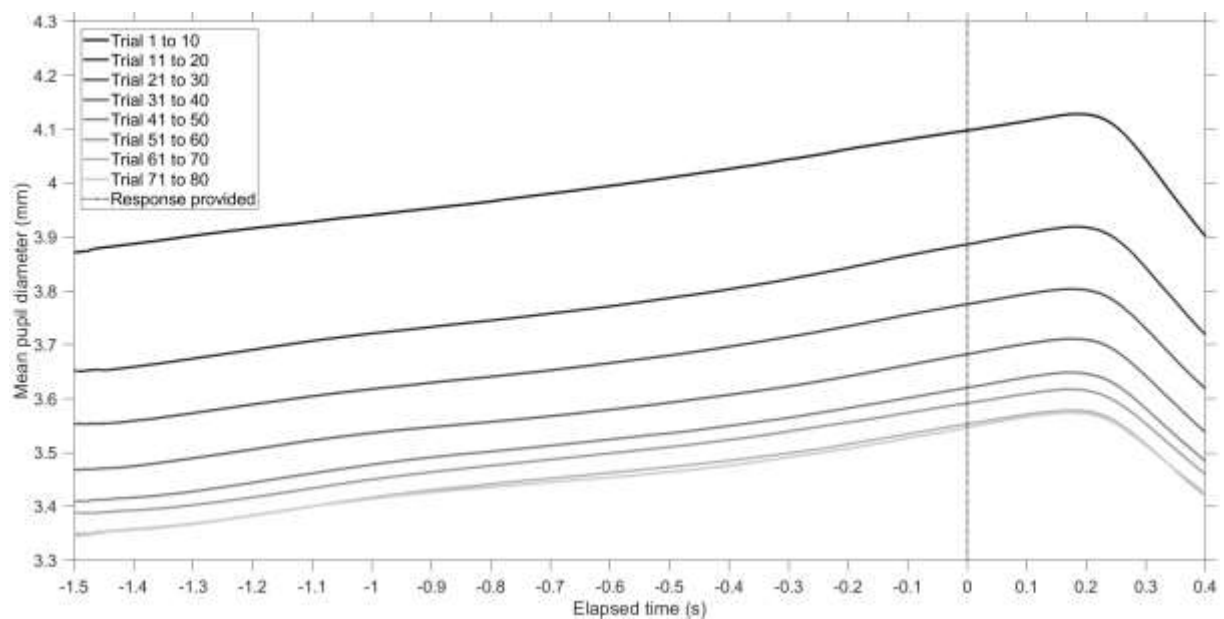
*Figure S4a.* First experiment: Mean response time per participant as a function of reported illusion. The boxplot shows the 25th percentile, median, and 75th percentile. The blue markers indicate the means. Black markers represent participants who reported 'yes' to the cue use question; white markers represent participants who reported 'no' to this question.



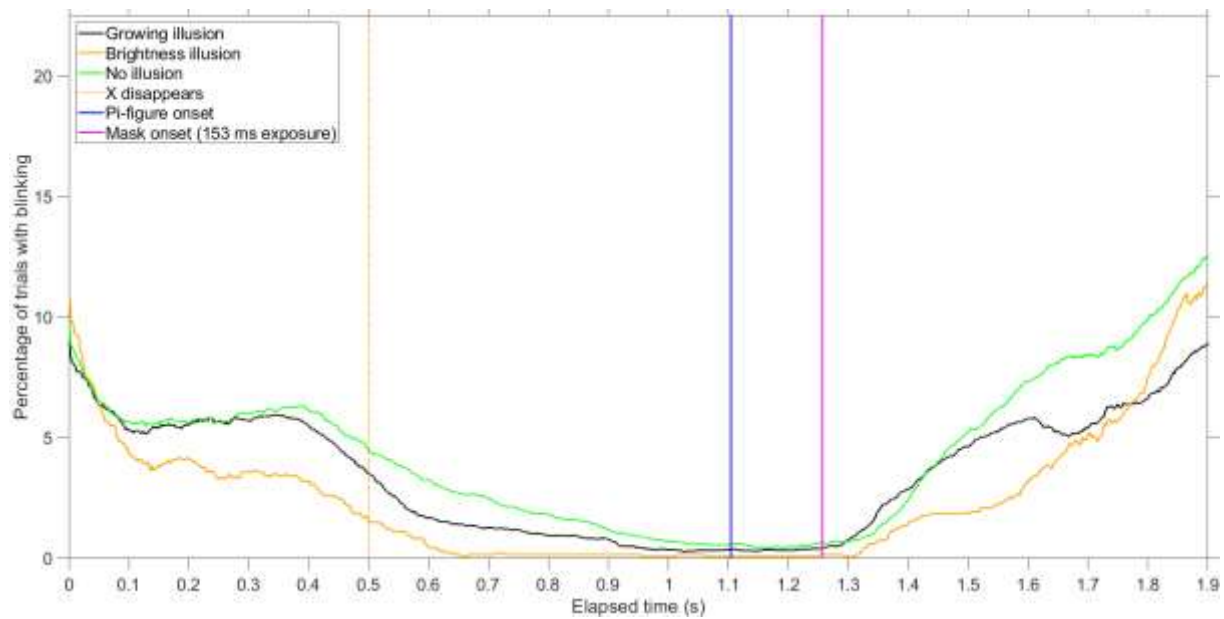
*Figure S4b.* Follow-up experiment: Median response time per participant as a function of reported illusion. The boxplot shows the 25th percentile, median, and 75th percentile. The blue markers indicate the means.



*Figure S5.* First experiment: Percentage of 80 trials in which the participant did not provide a response within the allocated time as a function of reported illusion type. The boxplot shows the 25th percentile, median, and 75th percentile. The blue markers indicate the mean. Black markers represent participants who reported ‘yes’ to the cue use question; white markers represent participants who reported ‘no’ to this question.



*Figure S6.* First experiment: Mean pupil diameter per group of 10 trials (11044 trials in total). The results are time-locked to the participants’ response (occurring at  $t = 0$  s). Participants were provided with a “CORRECT” or “INCORRECT” feedback message after responding. Pupil diameter data were linearly interpolated during blinks. Data were included up to 0.4 s after the participant provided a response.



*Figure S7.* First experiment: Percentage of trials where the participant was blinking for the growing illusion ( $n = 4257$ ), brightness illusion ( $n = 1345$ ), and no illusion ( $n = 5442$ ). Vertical lines are shown for the moment the fixation marker (X) disappeared, the moment the Pi-figure was presented, and the moment the mask was presented for the maximum exposure time of 153 ms. Data were included up to 0.4 s after the participant provided a response.